

Notice of Allowability

Application No.

10/724,925

Examiner

Ling-Siu Choi

Applicant(s)

THORMAN, JOSEPH

Art Unit

1713

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to October 26, 2005.
2. ☒ The allowed claim(s) is/are 1-17.
3. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 - a) ☐ All b) ☐ Some* c) ☐ None of the:
 1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

* Certified copies not received: _____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.

THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

4. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
 - (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
 - 1) ☐ hereto or 2) ☐ to Paper No./Mail Date _____.
 - (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____.Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

1. ☐ Notice of References Cited (PTO-892)
2. ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3. ☒ Information Disclosure Statements (PTO-1449 or PTO/SB/08), Paper No./Mail Date 10/26/05
4. ☐ Examiner's Comment Regarding Requirement for Deposit of Biological Material
5. ☐ Notice of Informal Patent Application (PTO-152)
6. ☐ Interview Summary (PTO-413), Paper No./Mail Date _____
7. ☒ Examiner's Amendment/Comment
8. ☒ Examiner's Statement of Reasons for Allowance
9. ☐ Other _____

DETAILED ACTION

1. This Office Action is in response to the Response filed October 26, 2005. Claims 18-30 were canceled and claims 1-17 are now pending.

Examiner's Amendment

2. An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CAR 1.312. To ensure consideration of such an amendment, it MUST be submitted no later than the payment of the issue fee.

Authorization for this examiner's amendment was given in a telephone interview with Ms Tenley R. Krueger on January 4, 2006.

3. The application has been amended as follows:

Claim 1, line 3, change "a Ziegler-Natta:" to --a Ziegler-Natta, and in any order:--;

Claim 1, line 11, change "the electron donor and propylene monomer;" to --the electron donor, propylene monomer and optionally, an olefin monomer other than propylene monomer:--;

Claim 9, line 2, change "additionally contains an olefin monomer other than propylene monomer" to --contains the olefin monomer other than propylene monomer--;

Claim 12, line 7, change "Table;" to --Table, and in any order:--;

Claim 12, lines 15-16, change "and propylene monomer;" to --propylene monomer and

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optionally, an olefin monomer other than propylene monomer;--.

Allowable Subject Matter

4. Claims 1-17 are allowed.

5. The following is an examiner's statement of reasons for allowance:

The present claims are allowable over the closest references: Hara et al. (US 5,489,634).

A process for propylene polymerization, comprising	
A	providing a Ziegler-Natta catalyst, and <u>in any order</u> : <ul style="list-style-type: none"> · contacting the catalyst with an organoaluminum compound; · contacting the catalyst with at least one electron donor comprising a di-sec-butyldialkoxysilane; · introducing the catalyst into a polymerization reaction zone containing the organoaluminum compound, at least one electron donor, and propylene monomer; and
B	removing propylene homopolymer or copolymer from the polymerization reaction zone

(summary of claim 1)

Hara et al. disclose a process to prepare a stereospecific polyolefin in the presence of a catalyst comprising (A) a catalyst component prepared by contacting (a) metal magnesium /2-ethylhexanol, tris-i-propoxyaluminum, and titanium tetra-n-butoxide with (b) isobutyl aluminum dichloride to obtain a solid product, and further reacting with this solid product (c) diisobutyl phthalate (or ethyl benzoate) and titanium tetrachloride to obtain a solid catalyst component, and

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further reacting with this solid catalyst component (d) triethyl aluminum and an oxygen-containing organic compound of silicon of the formula $t\text{-Bu}(n\text{-Bu})\text{Si}(\text{OM})_2$, **(B)** triethyl aluminum, and **(C)** an electron-donative compound which is selected from the group consisting of diphenyldimethoxysilane, **diisobutyldimethoxysilane**, n-propyltrimethoxysilane, and p-ethoxyethyl benzoate (claim 1). Hara et al. also recognize that component C may be **di(sec-butyl)dimethoxysilane** (col. 12, line 24). In view of the Figure 1 shown in the present invention, the catalyst activity is inversely proportional to the molar ratio of Al/Si for diisobutyldimethoxysilane to be used as the component C while the catalyst activity is directly proportional to the molar ratio of Al/Si for di(sec-butyl)dimethoxysilane to be used as the component C. Furthermore, Figure 2 demonstrates that the use of diisobutyldimethoxysilane as the component C leads to a much higher hydrogen response for the resulting catalyst compared with one for the catalyst comprising di(sec-butyl)dimethoxy as the component C. A conclusion can then be drawn that the use of di(sec-butyl)dimethoxysilane leads to unexpected results. Thus, Hara et al. do not teach or fairly suggest a process for olefin polymerization in the presence of a catalyst comprising di-sec-butyldialkoxysilane as the component C.

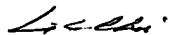
In light of the above discussion, it is evident as to why the present claims are patentable over the prior art.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Conclusion

6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ling-Siu Choi whose telephone number is 571-272-1098.

If attempt to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Wu, can be reach on 571-272-1114.



**LING-SUI CHOI
PRIMARY EXAMINER**

January 5, 2006